REMARKS/ARGUMENTS

Applicant's amendment (cancellation of claim 1 and addition of claims 2-13) was acknowledged by Examiner in the April 14, 2003 Office Action. Examiner did not enter the substitute specification because of the requirement for submitting a marked-up copy showing the amendments made via the substitute specification relative to the specification in the originally filed application. Applicant hereby submits a marked-up copy of the amendments to the specification.

Examiner rejected claims 2, 3, 6, 7, 8, 9, 12, and 13 under 35 U.S.C. 102(b) as being anticipated by Piazza (U.S. Patent No. 3,578,801). Examiner also rejected claims 4, 5, 10, and 11 under 35 U.S.C. 103(a) as being obvious over Piazza in view of Tyner (U.S. Patent No. 6,254,498).

Applicant conducted a telephone interview with Examiner on July 29, 2003 at 2:00 pm e.s.t. Applicant presented the following arguments in light of amendments to claims 2 and 8. Piazza (i) does not have a uniform inner and outer diameters but is tapered; (ii) does not have a bat portion that inserts into a handle but instead has a removable handle that can be screwed on and off to permit exchanging weights; (iii) does not permit the weight to slide for the entire length of the bat because of the way the handle is formed to prevent passage of the weight; and (iv) teaches an inertia top weighted bat with a relatively heavy sliding weight that moves on a guide rod by centrifugal motion towards the top portion of the bat.

Applicant's claimed invention: (i) has a uniform inner and outer diameter for the full length of both its outer tube and handle; (ii) has a handle that allows its outer tube to be inserted into an open end of its handle; (iii) has a sliding inner tube that slides the entire length of the hollow outer tube; and (iv) has a sliding inner tube which is so light that it does not transfer any weight during the swinging of the device, with no centrifugal motion inducing momentum swing. Furthermore, Applicant's claimed invention teaches and claims a lightweight plastic constructed device that teaches the proper swing by creating an audible sound made by a sliding hollow tube hitting a solid plug when the hitter achieves full extension. By contrast, the Piazza device is constructed of heavier materials such that it can be used to hit a ball whereas the device of the claimed invention is light weight and can not be used to hit a ball as such impact would possible crack or deform the device of the invention and thereby make it unusable. Also,

Applicants both teach and claim a method of teaching the proper swing whereas Piazza merely teaches a practice baseball bat with no teaching of a method. We therefore respectfully argue that Piazza does not anticipate Applicants' claimed invention and request that claims 2, 3, 6, 7, 8, 9, 12 and 13 be allowed.

Examiner has rejected claims 4, 5, 10 and 11 as unpatentable over Piazza in view of Tyner. Since base claim 2 from which claims 4 and 5 depend, and base claim 8, from which claims 10 and 11 depend have both been demonstrated to be allowable, it is respectfully submitted that claims 4, 5, 10 and 11 are also deemed to be allowable.

Applicants respectfully submit that claims 2-13 are clearly allowable for the above-stated reasons and therefore request such allowance.

Respectfully submitted,

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919/683-5514
Dated: August 13, 2003

Copy of Substitute Specification with Markings to Show Changes Made

TITLE OF INVENTION

THE SNAP BAT – A TRAINING AID FOR BASEBALL/SOFTBALL HITTING INSTRUCTION

~~CROSS-REFERENCE TO RELATED APPLICATIONS~~

~~Not Applicable.~~

~~STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT~~

~~Not Applicable~~

~~REFERENCE TO A MICROFICHE APPENDIX~~

~~Not Applicable~~

FIELD OF THE INVENTION

The invention relates, in general, to bat swing practice, and more specifically to a sound-producing bat swing practice device comprising a hollow outer tube with a handle portion adjoined to the hollow outer tube at one end and at the opposite end a solid plug and metal pin positioned inside the hollow outer tube along with an end cap at the end of the hollow outer tube. This hollow outer tube combination has a hollow inner slidable tube that creates a snapping sound when it travels the length inside of the hollow outer tube and strikes the solid plug, when the bat practice-training device is properly swung.

BACKGROUND OF THE INVENTION

~~BATS, Inc. conducted hitting instruction for baseball/softball for six years. Players had difficulty grasping the concept of full extension during the swing of the bat. Full extension is accomplished by achieving maximum bat speed at the point where the bat makes contact with the ball. A training aid was needed to demonstrate the concept.~~

~~The goal was to create a device that would only make a distinct noise at the proper point of bat contact with the pitched ball, the point of full extension. A batter's swing is very fast and thus difficult to visually examine and evaluate, even for an experienced hitting instructor. Your ears are very accurate at locating the point where the snap occurs. This promotes a muscle memory teaching point for hitters.~~

~~A second goal was to create a light weight device. Repeated swings with a standard weight bat can produce muscle fatigue and possibly even injury. Repetition in a fatigued state does not build the proper muscle memory, so it was important that the training aid be light weight.~~

~~Note: the device is not designed to make contact with a pitched ball. It is for practice swings only.~~

So-called training devices can be found in the literature. U.S. Pat. No. 5,360,209, by Mollica, entitled "BATTING TRAINING DEVICE" discloses a batting training device, which includes a handle and a weighted member movable relative to the handle along a longitudinal extending rod in response to the acceleration of the batting training device along a portion of a contact hitting swing. U.S. Pat. No. 6,050,908, by Muhlhausen, entitled "TRAINING BAT" describes a training bat consisting of a detachable elongated contact surface member joined with a handle member and a shock absorbing coupler. This greatly reduces the impact forces transferred to the hitter's hands. U.S. Pat. No. 4,898,386, by Anderson, entitled "TRAINING BAT" discloses a training bat comprising a hollow cylindrical bat having a handle and a striking end. A disk is positioned in the interior of the bat at substantially the center of the bat. Additionally, a plate is positioned in the interior of the bat at the end of the striking end of the bat. An object is slidably coupled in the interior of the bat between the disk and plate. The training bat is essentially shaped in the form of a conventional bat. A weight is coupled within the training bat wherein the weight extends from the disk toward the end of the bat in close proximity to the handle. The weight is coupled to a resilient member so that the resilient member bears weight against the weight to keep the weight from moving. U.S. Pat. No. 4,682,773, by Pomilia, entitled "BASEBALL TRAINING BAT" discloses a bat having a uniform outside diameter, the entire length thereof. The bat is essentially an elongated tubular member made of iron pipe material commonly referred to as 3/4-inch pipe. The bat is filled with foamed material. U.S. Pat. No. 4,555,111, by Alvarez, entitled "PRACTICE BAT" discloses a practice bat

comprising a handle portion and a weighted end portion interconnected by a resilient spring. When the bat is swung, the momentum of the weighted end portion will cause it to lag behind and then move ahead of a longitudinal at rest axis of the handle portion causing the player's wrists to break or bend. U.S. Pat. No. 4,399,996, by Boyce, entitled "PRACTICE BAT" discloses a baseball practice bat, which includes a head portion and a grip portion. The head portion and grip portion are bridged together via an articulating joint, which provides connected flexure or resilience. Such articulating joint is formed by a still coil spring, which is embedded in a potting resin such as an epoxy resin with a suitable hardener. U.S. Pat. No. 3,246,894, by Salisbury, entitled "BASEBALL TRAINING BAT OR SIMILAR ARTICLE" discloses a bat having a generally cylindrical tapered barrel portion joined to a handle portion having a flared butt end joined together via a central section. The central section has a small diameter to minimize the hitting area. In one embodiment, the central section is a torsion bar, which converts shock forces such as the impact of the ball on the barrel portion of the bat to prevent imparting of the shock forces to the hands of the batter on the handle portion.

~~BRIEF~~ SUMMARY OF THE INVENTION

~~After considerable research and testing, it was discovered that the unique design of the Snap Bat met both the goals. The "snapping" sound at full extension coupled with the proper point of bat contact with the pitched ball, was a clear indication of a fundamentally sound swing. Poor swings, such as "sweeping" or "casting" would not produce a snap or the snap would be clearly too early or too late. Further research revealed that the Snap Bat also could demonstrate advanced hitting techniques, e.g. "hitting to the opposite field" or "pulling the ball." This means that full extension and ball contact takes place either slightly later in the swing (opposite field) or slightly earlier in the swing (pulling the ball). Both the hitter and the instructor or parent can clearly hear the snapping sound and thus accurately analyze each swing.~~

~~The complete Snap Bat weighs only 12 ounces, considerably less than a standard baseball/softball bat typically weighing 22 to 30 ounces. It is critical that the hitter be able to repeat their swing at maximum speed without the risk of injury. Proper repetition is the key to developing a proper swing.~~

A review of the baseball/softball training devices illustrated in the prior art described above shows that none of them is designed to work on a sound or auditory basis where the sound

can inform the user if the user is swinging the bat properly. In addition, they are either a standard weight of a typical bat or even heavier in some cases. This limits their use for training purposes as the heavy weight restricts the user's ability to repetitively use the device to condition the user in the proper swing technique.

When hitting a baseball/softball, it is desirable to achieve what is referred to as "full extension" during the swing of the bat. Full extension is accomplished by achieving maximum bat speed at the point where the bat makes contact with the ball. A training aid was needed to demonstrate the concept.

The primary goal was to create a device that would only make a distinct noise, a snapping sound, at the proper point of bat contact with the pitched ball, (i.e., at the point of full extension). A batter's swing is very fast and thus difficult to visually examine and evaluate, even for an experienced hitting instructor. A person's ears are very accurate at identifying the point where the snapping sound occurs. This ability to identify where the snapping sound occurs, and therefore where full extension occurs, promotes a muscle memory teaching point for hitters.

A second goal was to create a lightweight device. Repeated swings with a standard weight bat can produce muscle fatigue and possibly even injury. Repetition in a fatigued state does not build the proper muscle memory, so it was important that the training aid be lightweight.

It is a major object of the invention to provide a method and means for meeting the above need. A batting practice device according to the present invention, as expressed in general terms, includes a specific combination of elements comprising: 1) a hollow outer tube with a handle portion abutting said hollow outer tube and into which said hollow outer tube inserts; 2) a solid plug affixedly attached inside of said hollow outer tube at the end opposite to said handle by means of epoxy glue and a steel retaining pin and with an end cap covering said solid plug and attached to the end of said hollow outer tube by means of epoxy glue; and 3) a hollow sliding inner tube positioned inside said hollow outer tube, such that said hollow sliding inner tube may slide the length of said hollow outer tube between said foam rubber handle and said solid plastic plug.

Expressed in terms more akin to a mechanical viewpoint, the batting-training device of the present invention provides:

1. A lightweight training device for perfecting a batting swing such that the user can grasp the concept of full extension during the swing of the bat;
2. A training device that produces sound when the user attains full extension; and
3. A training device, which produces a sound that informs the user when full extension is achieved at the optimum time and location (i.e., out in front of the body).

BRIEF DESCRIPTION OF ~~THE SEVERAL VIEWS OF~~ THE DRAWING

~~Figure 1., page 1 of drawings~~

~~This is a complete view of the entire Snap Bat. It is composed of six (6) individual pieces, each lettered with a listing of the appropriate dimensions. The six (6) pieces are in the order of placement in the final assembly.~~

Figure 1 is a perspective assembly view of the invention.

~~DETAILED~~ DESCRIPTION OF THE INVENTION AND OF PREFERRED EMBODIMENT

~~Other Hitting Aid Products:~~

~~Several devices have been patented in the hitting training aid area, specifically using a "bat" style.~~

~~U.S. Pat. No. 5,360,209, by Mollica, entitled "BATTING TRAINING DEVICE" discloses a batting training device which includes a handle and a weighted member movable relative to the handle along a longitudinal extending rod in response to the acceleration of the batting training device along a portion of a contact hitting swing.~~

~~U.S. Pat. No. 6,050,908, by Muhlhausen; Harry B., entitled TRAINING BAT" describes a training bat consisting of a detachable elongated contact surface member joined with a handle member and a shock absorbing coupler. This greatly reduces the impact forces transferred to the hitter's hands.~~

~~U.S. Pat. No. 4,898,396, by Anderson, entitled "TRAINING BAT" discloses a training bat comprising a hollow cylindrical bat having a handle and a striking end. A disk is positioned in the interior of the bat at substantially the center of the bat. Additionally, a plate is positioned in the interior of the bat at the end of the striking end of the bat. An object is slidably coupled in the interior of the bat between the disk and plate. The training bat is essentially shaped in the form of~~

~~a conventional bat. A weight is coupled within the training bat wherein the weight extends from the disk toward the end of the bat in close proximity to the handle. The weight is coupled to a resilient member so that the resilient member bears weight against the weight to keep the weight from moving.~~

~~U.S. Pat. No. 4,682,773, by Pomilia, entitled "BASEBALL TRAINING BAT" discloses a bat having a uniform outside diameter, the entire length thereof. The bat is essentially an elongated tubular member made of iron pipe material commonly referred to as 3/4 inch pipe. The bat is filled with foamed material.~~

~~U.S. Pat. No. 4,555,111, by Alvarez, entitled "PRACTICE BAT" discloses a practice bat comprising a handle portion and a weighted end portion interconnected by a resilient spring. When the bat is swung, the momentum of the weighted end portion will cause it to lag behind and then move ahead of a longitudinal at rest axis of the handle portion causing the player's wrists to break or bend.~~

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~~A review of these devices shows that none of them are designed to work on a sound or auditory basis. In addition, they are either a standard weight or even heavier in some cases. This limits their use for repetition.~~

~~2. Structure of the Snap Bat:~~

~~Figure 1., page 1, shows the six parts of the Snap Bat. It consists of a foam rubber handle (A), and a short piece of plastic pipe (B), that while contained, is free to slide~~

~~inside a hollow plastic tube (C). A solid plastic plug (E) is located inside the tube at the end opposite the handle. The plug is attached to the inside of the tube by epoxy glue and a steel pin (D) that is drilled through both the tube and the plug. The plug end of the tube is covered with an end cap (F) that is attached with epoxy glue. The cap covers the pin ends and prevents the pin from coming loose. The dimensions of each part are listed in Figure 1., page 1.~~

~~The short piece of plastic pipe (B) is called the "snapper" and makes the characteristic and critical noise when it hits the plug.~~

~~3. Manufacturing Process:~~

~~1. Schedule 40, ¾" PVC tubing is cut with a table saw into 32 inch lengths with square ends. The pipe has been previously dyed green at the PVC manufacturing facility. The color is for marketing purposes only and has no mechanical function. This is Part C, Figure 1., page 1.~~

~~2. PEX pipe or plastic hot/cold water pipe is cut with hand shears into 3 inch lengths with square ends. This is Part B, Figure 1., page 1.~~

~~3. 3/32 inch steel rod is cut with hand shears into 1.05 inch lengths with square ends. This is Part D, Figure 1., page 1.~~

~~4. Grade 1, PVC, ¾ inch diameter solid rods are sanded by hand to abrade the surface to increase adhesion when glued. The rods are then cut into 1.25 inch plugs with square ends. This is Part E, Figure 1., page 1.~~

~~5. Each plug (E) has a 1/8 inch hole drilled lengthwise using a drill press to release air pressure when the cap is applied. This is Part E, Figure 1., page 1.~~

~~6. Epoxy glue is applied to the inside of one end of the PVC tube and the plug is inserted and twisted to spread the glue evenly. The tube is then placed plug down in a drying rack. A small screw in the base of the rack, at each tube location, pushes the plug up into the tube approximately ¼ inch. This creates an air gap between the plug and the end cap (F).~~

~~7. After 48 hours drying time, each tube is removed from the rack and has a 3/32 inch hole drilled 5/8 inch from the plug end of the tube. The hole is perpendicular to the tube and passes through both sides of the tube and the plug, through the centerline.~~

~~8. A steel pin, 3/32 inch in diameter and 1.05 inches in length is pushed through the perpendicular hole in the end of the tube and plug assembly. The glue and pin prevents the plug from coming loose and represents the final assembly of the tube and plug section. This is Part D, Figure 1., page 1.~~

~~9. A standard, off the shelf, ¾ inch PVC end cap is glued on the plug end of the tube and allowed to dry for 24 hours. This is Part F, Figure 1., page 1.~~

~~10. One 3 inch hot/cold water pipe piece is inserted into the tube from the handle end. This is Part B, Figure 1., page 1.~~

~~11. A foam rubber handle is pushed on the open end of the tube (C) until seated. This is Part A, Figure 1., page 1.~~

12. ~~Each completed Snap Bat is swung to make sure it works and is ready for shipment.~~

Referring to Figure 1 and the prior description, it will again be noted that the bat-training device of the invention comprises six parts, namely (i) a handle portion (A), (ii) a hollow outer tube (C), (iii) a hollow inner tube (B), (iv) a steel pin (D), (v) a solid plug (E), and (vi) an end cap (F).

Hollow outer tube (C) is intended to be of lightweight material and uniform diameter and of a length approximating that of most bats. The handle portion (A) has at its inner end a slightly larger inner diameter than the outer diameter of the hollow outer tube such that the hollow outer tube can be inserted into the inner end of the handle portion. The handle portion (A) is made of material, which enables it to be easily grasped and also is lightweight and of length approximately equivalent to the length of most bat handles. In the illustrated embodiment, solid plug (E) is illustrated as having a hole drilled lengthwise through it This solid plug (E) is positioned at the end of hollow outer tube (C) opposite to handle portion (A) and affixed to the inner portion of hollow outer tube (C) by means of glue. A steel pin (D) is inserted into drill holes through hollow outer tube (C) and solid plug (E). An end cap (F) covers the end of hollow outer tube (C) at the end opposite to handle portion (A). Inside of hollow outer tube (C) is placed a slidable hollow inner tube (B) of outside diameter slightly less than the inner diameter of hollow outer tube (C) which permits slidable hollow inner tube (B) to slide the interior length of hollow outer tube (C) between the inner end of handle portion (A) and solid plug (E) with steel pin (D).

In the preferred embodiment of the invention hollow outer tube (C) is made of Schedule 40, ¾" plastic tubing, which is cut into 32-inch lengths with square ends. Hollow inner tube (B) is made of plastic pipe or plastic hot/cold water pipe, which is cut into 3-inch lengths with square ends. Solid plug (E) is made of Grade 1, plastic, ¾ inch diameter solid rods, which are sanded to abrade the surface to increase adhesion when glued. These rods are then cut into 1.25-inch plugs with square ends. Solid plug (E) is illustrated as having a 1/8-inch hole drilled lengthwise through it. Epoxy glue is applied to the inside of one end of the hollow outer tube (C) and the solid plug (E) is inserted into the end of hollow outer tube (C) and twisted to spread the glue evenly. Solid plug (E) is pushed up into the tube approximately ¼ inch. This creates an air gap between the plug and the end cap (F). Steel pin (D) is made of 3/32 inch steel rod, which is cut into 1.05-inch lengths with square ends. A 3/32-inch hole is drilled 5/8 inch from the solid plug end of hollow outer tube (C). This drill hole is perpendicular to hollow outer tube (C) and passes through both sides of hollow outer tube (C) and through the centerline of solid plug (E). Steel pin (E) is pushed through the drill hole. The epoxy glue and steel pin (D) prevent solid plug (E) from coming loose. End cap (F) is made of standard, off the shelf, ¾ inch plastic end cap, which is glued on the solid plug (E) end of hollow outer tube (C). Hollow inner tube (B) is made of plastic pipe or plastic hot/cold water pipe, which is cut into 3-inch lengths with square ends. Hollow inner tube (B) is inserted into hollow outer tube from the handle end (A). Handle portion (A) is made of foam rubber and is pushed on the open end of hollow outer tube (C) until seated.